

National Park Service
US Department of the Interior

Concession Environmental Management Program
Denver, Colorado



Concession Environmental Audit System

AUDIT QUESTIONNAIRE

Purpose:

This questionnaire was developed to gather information about your facilities and services required and/or authorized under your concession contract with the park. The Audit Team will review your answers in order to determine what resources are needed for the environmental audit and to minimize disruption of your facilities and services.

Definitions and Clarifications:

For the purpose of this questionnaire, the term “facility” refers to the facilities and property assigned to you under the concession contract, and all activities taking place in or on those facilities and property. All questions refer to your facilities and services within park boundaries.

The “park” refers to the National Park Service (NPS) Unit for which you are a concessioner. The questions are not intended to determine your level of regulatory compliance, but rather to identify environmental audit criteria that may be applicable to your facilities and services. This will allow the Audit Team to effectively and efficiently plan the environmental audit.

Instructions:

Please fill out this entire Audit Questionnaire; be sure to answer each question. If you believe that a question is not applicable to you, answer the question by circling “NO” or writing in “NA” (not applicable) if “NO” is not an option. If you do not have sufficient information to confidently address a question, answer by circling “UNSURE.”

For some questions, you may find that there is not enough space to give a detailed answer. In these cases, feel free to attach additional pages if necessary. Be sure to clearly state which question you are answering on your additional pages.

Return the completed Audit Questionnaire to the park by the date specified by the park.

Assistance:

If you require assistance in completing the Audit Questionnaire or have questions regarding the intent of a specific question, contact the Concession Environmental Management Program via the *GreenLine* number at 303/987-6913, or email at <NPS_GreenLine@nps.gov>.

This form was completed by:

Name

Title

Date

A. GENERAL CONTACT INFORMATION

CONCESSIONER NAME

CONCID

OPERATING ADDRESS

CORPORATE ADDRESS or ADDRESS IN OFF-SEASON (I.E. MAILING ADDRESS FOR CORRESPONDENCE)

POINT OF CONTACT (I.E., ENVIRONMENTAL MANAGER) NAME

TITLE

POINT OF CONTACT PHONE

FAX

EMAIL

B. FACILITY AND SERVICE INFORMATION

1. Approximately how many concessioner staff work at your facility/ies full-time?	
2. Approximately how many concessioner staff work at your facility/ies part-time (i.e., seasonally)?	
3. Approximately how many volunteers work at your facility/ies?	
4. Approximately how many other types of workers (e.g., contractors) work at your facility/ies? (Please identify what types of workers they are.)	
<p>5. Have you or other organizations (other than the NPS Concession Program) conducted environmental audits of your facility/ies?</p> <p><i>If "yes," please identify who conducted the environmental audits and when they took place.</i></p>	<p>YES NO UNSURE</p>
<p>6. Please fill in the form on the following page. You should list all your services and describe all the activities that take place in each. Some services are listed below; if your services do not fit into one of these categories, please describe them as best as possible. Some of the activities of interest are also listed below; please use these in describing what takes place in each of your services; if your services do not fit into one of these categories, please describe them as best as possible.</p> <p>Services: Motorized passenger tours, motorized boat tours/ferry service, service/gas station, visitor/employee housing, campground/trailer park, visitor/employee food service, retail/grocery store, marina, watercraft rental, horseback tour, horse/mule stable, river rafting, fishing guide, hunting guide, mountaineering guide, swimming pool, golf course, photography laboratory, medical/dental clinic, interpretation service, bicycle rental, tennis court, showers/laundry, skiing, ski/snowshoe rental, snowmobile rental, other (please describe).</p> <p>Activities: Vehicle maintenance, vehicle fueling, boat maintenance, boat fueling, aircraft maintenance, aircraft fueling, building maintenance (including construction, renovation, painting, lighting or plumbing fixture repair or replacement), cleaning, landscaping (including lawn mowing, plant trimming, watering, pesticide use), printing, photo processing, other (please describe).</p>	

Operation/Facility	Activities	Operating Season (mm/dd/yyyy)

C. AIR QUALITY MANAGEMENT	
7. Do you have any air emission permits or registrations? If you answered "yes," what are they for?	YES NO UNSURE
8. Do you conduct air emissions monitoring at your facility?	YES NO UNSURE
9. Do you operate any air pollution control devices at your facility (e.g., filters, cyclones, bag houses, vapor recovery)? If you answered "yes," what are they?	YES NO UNSURE
10. Do you operate any boilers or furnaces that could output over 100,000 Btu/hr? If you answered "yes," what is their size (Btu/hr), location, and type of fuel used?	YES NO UNSURE
11. Do you have any emergency generators? If you answered "yes," what is their size, location, and type of fuel used?	YES NO UNSURE

D. ANTIFREEZE MANAGEMENT	
12. Do you use antifreeze in your vehicles or for winterization of water pipes?	YES NO UNSURE
13. Do you recycle used antifreeze?	YES NO UNSURE
14. Do you use propylene glycol-based antifreeze? <i>Note: Propylene glycol-based antifreeze is usually red or pink in color, but exceptions do apply.</i>	YES NO UNSURE

E. CFC AND HALON MANAGEMENT	
15. Do you have or use air conditioners in buildings?	YES NO UNSURE
16. If you answered "yes" to the previous question, do your employees service the air conditioners in buildings?	YES NO UNSURE
17. Do you have or use air conditioners in vehicles?	YES NO UNSURE
18. If you answered "yes" to the previous question, do your employees service the air conditioners in the vehicles?	YES NO UNSURE
19. Do you have refrigerator or freezer units?	YES NO UNSURE

F. EMERGENCY RESPONSE PLANNING AND REPORTING	
20. Does your concession contract specify your hazardous substance spill/release cleanup responsibilities?	YES NO UNSURE
21. Do you have an Emergency Action Plan (EAP) for hazardous substance releases? <i>Note: Either an EAP or Emergency Response Plan (ERP) (see below) is required at a facility which uses and/or stores hazardous substances, but each plan has different regulatory stipulations. Hazardous substances include, but are not limited to hazardous chemicals (such as cleaners, oils, paints, and solvents) and hazardous wastes.</i>	YES NO UNSURE
22. Do you have an Emergency Response Plan (ERP) for hazardous substance releases?	YES NO UNSURE
23. Do you have a hazardous substance spill reporting procedure?	YES NO UNSURE
24. Do you provide personal protective equipment (PPE) to employees (e.g., gloves, respirators, dust masks)?	YES NO UNSURE

G. ENERGY AND WATER CONSERVATION	
25. Have you undergone an energy audit or assessment to identify ways in which to conserve energy?	YES NO UNSURE
26. Have you implemented any energy conservation measures? <i>If you responded "yes," please describe the measures taken.</i>	YES NO UNSURE
27. Have you undergone a water audit or assessment to identify ways in which to conserve water?	YES NO UNSURE
28. Have you implemented any water conservation measures? <i>If you responded "yes," please describe the measures taken.</i>	YES NO UNSURE

H. ENVIRONMENTAL MANAGEMENT SYSTEMS	
29. Do you have environmental requirements in your concession contract? <i>If yes, please list what they are.</i>	YES NO UNSURE
30. Do you have a Risk Management Program (formerly known as the Loss Control Program or Safety Program) requirement in your concession contract?	YES NO UNSURE
31. Do you have environmental requirements in your operating and maintenance plans? <i>If yes, please list what they are.</i>	YES NO UNSURE
32. Are environmental considerations integrated into your activities and long-range project or budget plans?	YES NO UNSURE
33. Do you have a documented Environmental Management System (EMS)?	YES NO UNSURE
34. If you answered "yes" to the previous question, does your documented EMS meet the NPS concession contract specifications (36 CFR 51) for a documented Environmental Management Program (EMP, which is a type of EMS)?	YES NO UNSURE
<p>35. Have you established written policies and procedures for the following:</p> <ul style="list-style-type: none"> • Emergency Response (as may be required by US EPA regulations)? • Energy and/or Water Conservation? • Green Procurement (i.e., environmentally preferable purchasing)? • Hazard Communication (as may be required by OSHA regulations)? • Pest Control (e.g., Integrated Pest Management and pesticide use) (as may be required by NPS policies)? • Respiratory Protection (as may be required by OSHA regulations)? • Hazardous Waste Management? • Solid Waste Management (e.g., for trash, recycling, landscaping waste, maintenance waste)? • Other Areas? <i>Please list.</i> <p><i>If you answered "yes" to any of the above, please also indicate whether these written policies and procedures are in your documented EMS by writing "EMS" beside the appropriate listed item.</i></p>	<p>YES NO UNSURE YES NO UNSURE</p>
<p>36. Do you have a plan in place to ensure that the following individuals receive updated environmental training (e.g., hazard communication, EMS, respiratory protection):</p> <ul style="list-style-type: none"> • New employees? • Existing employees? • Contractors? • Volunteers? 	<p>YES NO UNSURE YES NO UNSURE YES NO UNSURE YES NO UNSURE</p>
37. Do you have a program in place to educate visitors about your environmental programs?	YES NO UNSURE

38. Are environmental responsibilities defined for:	
<ul style="list-style-type: none"> • Senior Managers? <i>If yes, please list their titles/positions.</i> 	YES NO UNSURE
<ul style="list-style-type: none"> • Supervisors (e.g., facility manager, shop foreman, housekeeping manager, head of purchasing)? <i>If yes, please list their titles/positions.</i> 	YES NO UNSURE
<ul style="list-style-type: none"> • Key Operations (e.g., facility management, maintenance, housekeeping, purchasing)? <i>If yes, please list their titles/positions.</i> 	YES NO UNSURE

I. FUEL STORAGE TANKS

39. For all tanks that contain oil, other petroleum products, or hazardous substances, please provide the following information for each: location, indication as to whether it is aboveground or underground, capacity (in gallons), and contents.

J. GREEN PROCUREMENT

40. Do you have a written green procurement (i.e., environmentally-preferable) purchase program?	YES NO UNSURE
41. Do you purchase:	
<ul style="list-style-type: none"> • Energy Star computer and office equipment? 	YES NO UNSURE
<ul style="list-style-type: none"> • Office paper with recycled content? 	YES NO UNSURE
<ul style="list-style-type: none"> • Other paper products with recycled content (e.g., bathroom tissue, paper towels)? 	YES NO UNSURE
<ul style="list-style-type: none"> • Office supplies with recycled content (e.g., pens, trash bags, printer toner cartridges)? 	YES NO UNSURE
<ul style="list-style-type: none"> • Rerefined oil? 	YES NO UNSURE
<ul style="list-style-type: none"> • Retread tires? 	YES NO UNSURE
<ul style="list-style-type: none"> • Recycled antifreeze 	YES NO UNSURE
<ul style="list-style-type: none"> • Environmentally preferable or less toxic cleaners? 	YES NO UNSURE
<ul style="list-style-type: none"> • Products in bulk? 	YES NO UNSURE
<ul style="list-style-type: none"> • Other? <i>Please list</i> 	YES NO UNSURE

K. HAZARD COMMUNICATION (HAZCOM)

<p>42. Do you have a safety coordinator?</p> <p>If you answered "yes," what is his/her name?</p>	<p>YES NO UNSURE</p>
<p>43. Do you store or use hazardous chemicals?</p> <p><i>Note: Hazardous chemicals, as defined by OSHA, include, but are not limited to chemicals such as cleaning products, paints, oils, fuels, and solvents.</i></p>	<p>YES NO UNSURE</p>
<p>44. Do you have a list of all the hazardous chemicals used and/or stored at your facility/ies?</p>	<p>YES NO UNSURE</p>
<p>45. Do you have material safety data sheets (MSDSs) for each hazardous chemical used and/or stored at your facility/ies?</p>	<p>YES NO UNSURE</p>
<p>46. Do you have a written Hazard Communication plan?</p>	<p>YES NO UNSURE</p>
<p>47. Do you provide personal protective equipment (PPE) to employees (e.g., gloves, respirators)?</p>	<p>YES NO UNSURE</p>
<p>48. Do you train your staff on the Hazard Communication plan?</p>	<p>YES NO UNSURE</p>
<p>49. Do you train other employers' (e.g., the NPS) employees on the Hazard Communication plan if these other employees may be exposed to concessioner hazardous chemicals?</p>	<p>YES NO UNSURE</p>
<p>50. Have there been any asbestos or lead-based paint tests conducted at your facility?</p> <p>If you responded "yes," were asbestos or lead-based paint present at the facility?</p>	<p>YES NO UNSURE</p>

L. HAZARDOUS MATERIALS MANAGEMENT

<p>51. Do you use or store any hazardous materials?</p> <p><i>Note: Hazardous materials, as defined by OSHA, include, but are not limited to hazardous chemicals (see the Hazard Communication section), and other substances.</i></p>	<p>YES NO UNSURE</p>
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M. HAZARDOUS WASTE MANAGEMENT

To the best of my knowledge, I certify that concessioner facilities and services being audited by the National Park Service Concession Environmental Management Program are classified as a (pick one):

- Conditionally Exempt Small Quantity Generator (CESQG) of hazardous waste (generate less than 220 lbs of hazardous waste per month).
- Small Quantity Generator (SQG) of hazardous waste (generate between 220-2,200 lbs of hazardous waste per month).
- Large Quantity Generator (LQG) of hazardous waste (generate over 2,200 lbs of hazardous waste per month).
- Unsure what hazardous waste generator status is.

Signature and Title

Date

52. What amount of hazardous waste do you generate:

- Less than 220 lbs (100 kg) per month?
- Between 220 lbs and 2,200 lbs (100 kg and 1,000 kg) per month?.....
- Over 2,200 lbs (1,000 kg) per month?

YES NO UNSURE
YES NO UNSURE
YES NO UNSURE

Note: Hazardous waste is defined by the US EPA as being any solid waste which is ignitable, corrosive, reactive, toxic, or listed in the hazardous waste regulations. Hazardous waste includes, but is not limited to, items such as old paints, solvents, and cleaning chemicals that will no longer be used.

53. Are hazardous wastes stored onsite for:

- Longer than 90 days?
- Longer than 180 days?
- Longer than 270 days?

YES NO UNSURE
YES NO UNSURE
YES NO UNSURE

54. Have you tested any wastes to determine if they are hazardous?

If you answered "yes," please list which wastes were tested, and whether they were classified as hazardous wastes.

YES NO UNSURE

55. Do you have an EPA identification number to dispose of hazardous waste for your facility/ies?

YES NO UNSURE

56. Do you have a Resource Conservation and Recovery Act (RCRA) permit for hazardous waste treatment, storage, or disposal?

YES NO UNSURE

57. Do you transport your own hazardous waste offsite?

YES NO UNSURE

58. Do you have a contractor or other party transport your hazardous waste offsite?

YES NO UNSURE

59. Is your hazardous waste treated or disposed of using one of the following processes:	
• Incineration?	YES NO UNSURE
• Landfill or land treatment?	YES NO UNSURE
• Physical or chemical treatment?	YES NO UNSURE
• Biological treatment?	YES NO UNSURE
• Underground injection?	YES NO UNSURE
• Elementary neutralization unit?	YES NO UNSURE
60. Do you have any polychlorinated biphenyl (PCB)-containing equipment (e.g., light ballasts purchased before 1980, transformers, capacitors) in use or in storage?	YES NO UNSURE
61. Do you own or are you assigned to any structures that pre-date 1980?	YES NO UNSURE
62. Do you have any equipment containing a radioactive source (e.g., medical equipment, densimeter)?	YES NO UNSURE
63. Do you generate any radioactive waste?	YES NO UNSURE

N. LABORATORY CHEMICAL AND WASTE MANAGEMENT	
64. Do you have a laboratory (e.g., water treatment plant, photo processing laboratory)?	YES NO UNSURE

O. PAINTS AND SOLVENTS	
65. Do you use paints or solvents?	YES NO UNSURE

P. PESTICIDE MANAGEMENT	
66. Do you or contractors use pesticides indoors or outdoors?	YES NO UNSURE
67. Do you store pesticides onsite?	YES NO UNSURE
68. Do you generate pesticide wastes?	YES NO UNSURE
69. Do you submit your annual reports to the park regarding pesticide usage?	YES NO UNSURE
70. Do you have an integrated pest management (IPM) plan?	YES NO UNSURE

Q. RESPIRATORY PROTECTION	
71. Do you have a written Respiratory Protection Plan?	YES NO UNSURE
72. Do you train your staff on the Respiratory Protection Plan?	YES NO UNSURE
73. Do any of your staff use respirators?	YES NO UNSURE

74. Do any of your staff use dust masks?	YES NO UNSURE
75. Have you carried out any construction, renovation, or abatement that involved asbestos or lead-based paint?	YES NO UNSURE
76. Have there been any asbestos or lead-based paint tests conducted at your facility? If you responded "yes," what were the results of the tests?	YES NO UNSURE

R. SOLID WASTE MANAGEMENT

77. Do you have a written plan or procedure on how you manage your solid waste? If you answered "yes," does your written plan or procedure follow the recommendations in the NPS Solid Waste Management Handbook (i.e., for creating an Integrated Solid Waste Management Plan (ISWAP))?	YES NO UNSURE YES NO UNSURE
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78. To dispose of your trash, do you:	
• Contract for offsite disposal with the park?	YES NO UNSURE
• Contract for offsite disposal with a private vendor?	YES NO UNSURE
• Incinerate onsite?	YES NO UNSURE
• Landfill onsite?	YES NO UNSURE
• Compost onsite?	YES NO UNSURE
• Other? <i>Please describe</i>	YES NO UNSURE

79. Do you recycle the following:	
• White paper?	YES NO UNSURE
• Colored paper?	YES NO UNSURE
• Newspaper?	YES NO UNSURE
• Cardboard?	YES NO UNSURE
• Aluminum cans?	YES NO UNSURE
• Plastic?	YES NO UNSURE
• Glass?	YES NO UNSURE
• Other (e.g., used oil, used antifreeze, scrap metal)? <i>Please list.</i>	YES NO UNSURE

80. If you recycle, do you contract out for recycling services (e.g., pickups)?	YES NO UNSURE
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81. Do you generate green waste (e.g., grass clippings, leaves, horse manure)? <i>If you answered "yes," please describe how you dispose of your green waste (e.g., dispose of in trash, compost).</i>	YES NO UNSURE
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82. Do you generate food waste? <i>If you answered "yes," please describe how you dispose of your food waste (e.g., food grinder, dispose of in trash, compost).</i>	YES NO UNSURE
83. Please complete the Waste Inventory Form in Appendix A.	

S. SPCC PLANNING

84. Do you have a Spill Prevention, Control, and Countermeasures (SPCC) Plan?	YES NO UNSURE
85. Do you store oil in excess of the following quantities: <ul style="list-style-type: none"> • A combined total of 42,000 gallons in underground storage tanks?..... • A combined total of 1,320 gallons in aboveground storage tanks and containers with the capacity to hold 55 gallons or more?..... 	YES NO UNSURE YES NO UNSURE

T. STORM WATER MANAGEMENT

86. Have you carried out any exterior construction?	YES NO UNSURE
87. Have you carried out any exterior maintenance?	YES NO UNSURE

U. UNIVERSAL WASTE MANAGEMENT

88. Do you manage any of the following wastes as universal waste, as opposed to hazardous waste: <ul style="list-style-type: none"> • Fluorescent lights (burned out)?..... • Batteries (excluding dead alkaline batteries)? • Mercury-containing thermostats (used)? • Pesticides (waste)? <p><i>Note: Universal waste is a subset of hazardous waste that can be managed differently from other hazardous wastes. Currently, the US EPA only recognizes certain types of fluorescent lights, batteries, mercury-containing thermostats, and pesticides as being universal wastes. However, some states regulate other types of solid wastes as universal wastes (e.g., aerosol cans in Colorado).</i></p>	YES NO UNSURE YES NO UNSURE YES NO UNSURE YES NO UNSURE
89. What amount of universal waste do you generate: <ul style="list-style-type: none"> • Less than 11,025 lbs (5,000 kg) per month? • More than 11,025 lbs (5,000 kg) per month? 	YES NO UNSURE YES NO UNSURE

V. USED OIL MANAGEMENT

90. Do you generate used oil?	YES NO UNSURE
91. Do you recycle used oil?	YES NO UNSURE

W. WASTEWATER MANAGEMENT

92. Do you have a wastewater discharge permit?	YES NO UNSURE
93. Do you discharge sanitary wastewater (e.g., from toilets) to a: <ul style="list-style-type: none"> • Publicly Owned Treatment Work (POTW)? YES NO UNSURE • Federally Owned Treatment Work (FOTW)? YES NO UNSURE • Septic system? YES NO UNSURE • Navigable waterway? YES NO UNSURE • Other YES NO UNSURE 	
94. Do you discharge graywater (e.g., from showers, laundries, and kitchens) to a: <ul style="list-style-type: none"> • Publicly Owned Treatment Work (POTW)? YES NO UNSURE • Federally Owned Treatment Work (FOTW)? YES NO UNSURE • Septic system? YES NO UNSURE • Navigable waterway? YES NO UNSURE • Other YES NO UNSURE 	
95. Do you discharge maintenance wastewaters (e.g., from cleaning tools) to a: <ul style="list-style-type: none"> • Publicly Owned Treatment Work (POTW)? YES NO UNSURE • Federally Owned Treatment Work (FOTW)? YES NO UNSURE • Septic system? YES NO UNSURE • Navigable waterway? YES NO UNSURE • Other YES NO UNSURE <p><i>Please identify your maintenance wastewaters (e.g., vehicle washing, floor cleaning), if you have any.</i></p>	
96. Do you use any of the following onsite wastewater pretreatment or treatment processes: <ul style="list-style-type: none"> • Grease traps? YES NO UNSURE • Oil/water separators? YES NO UNSURE • Other? <i>Please list</i> YES NO UNSURE 	



APPENDIX A – WASTE INVENTORY FORM STANDARD VOLUME-TO-WEIGHT CONVERSION FACTORS

Purpose:

This Waste Inventory Form (WIF) was developed to gather information on the types of wastes generated by your concessioner facilities and services. The audit team will review these data to help determine some of the regulatory requirements that may be applicable to your facilities and services, and to provide you with assistance on how to properly handle and manage your different types of waste.

Definitions and Clarifications:

For the purpose of this WIF, all questions refer to wastes generated by your facilities and services within Park boundaries. For example, if you have a warehouse outside the park, do not include packaging, cardboard, and other wastes associated with warehouse operations.

Instructions:

Fill out columns A through C, using the directions provided below. Refer to the four-page “Standard Volume-to-Weight Conversions Factors” attachment to help you estimate the weight of waste types. (This is found after the one-page WIF.)

Column A: For each waste, estimate its maximum monthly generation rate over the past 24 months in pounds (lbs) or gallons (gals).

Column B: For each waste, indicate whether it is recycled. *Note: "Recycling" means the series of activities, including collection, separation, and processing, by which products or other materials are recovered from the solid waste stream for use in the form of raw materials in the manufacture of new products other than fuel for producing heat or power by combustion.*

Column C: For each waste, indicate where (location) the waste is generated, and what activity generates the waste. *Note: A sample list of activities is found in Facility and Service Information - Question 6 of the Audit Questionnaire.*

WASTE INVENTORY FORM

	A	B	C
Waste	Estimated maximum monthly generation rate (lbs or gals)	Is the waste recycled?	Location and activity that generates waste
1. Contaminated Floor Sweep		YES NO	
2. Waste Mineral Spirits/Turpentine/Wood Conditioner		YES NO	
3. Waste Paint		YES NO	
4. Waste Degreasing Solvent/Carburetor Cleaner		YES NO	
5. Waste Fuel (Gasoline)		YES NO	
6. Used Fuel Filters		YES NO	
7. Used Oil Filters		YES NO	
8. Used Diesel No. 2 Fuel		YES NO	
9. Used Motor Oil		YES NO	
10. Used Ethylene Glycol Antifreeze		YES NO	
11. Used Propylene Glycol Antifreeze		YES NO	
12. Oil/Gas/Solvent Contaminated Absorbent Pads		YES NO	
13. Pesticide Waste		YES NO	
14. Recovered CFCs and Halons		YES NO	
15. Waste Cleaning Products		YES NO	
16. Burned-Out Fluorescent Tubes		YES NO	
17. Spent Lead Acid Batteries		YES NO	
18. Spent Nickel Cadmium Batteries		YES NO	
19. Used Tires		YES NO	
20. Scrap Metal (Steel, Aluminum, etc.)		YES NO	
21. Bulky Appliances/Furniture		YES NO	
22. Packaging Waste (Pallets, Boxes, Milk Crates)		YES NO	
23. Food Waste (Excluding Animal Fat/Grease)		YES NO	
24. Animal Fat/Grease		YES NO	
25. Landscaping Waste (Grass Clippings, Leaves, Branches)		YES NO	
26. Animal Manure		YES NO	
27. Commingled Recyclables (Aluminum, Plastic, Tin, Glass)		YES NO	
28. Mixed Paper/Cardboard		YES NO	
29. Toner Cartridges		YES NO	
30. Sewage Wastewater		YES NO	
31. Graywater		YES NO	
32. General Trash (Garbage not accounted for in other categories on this form)		YES NO	
33. Other Waste (list) 1. 2. 3.			

Standard Volume-to-Weight Conversion Factors

Taken from the US Environmental Protection Agency, "Measuring Recycling – A Guide for State and Local Governments," September 1997, EPA530-R-97-011.

Category	Recyclable Materials (u/c = uncompacted/ compacted & baled)	Volume	Estimated Weight (in pounds)
FOOD SCRAPSⁱ	Food scraps, solid and liquid fats	55-gal drum	412
GLASS	Bottlesⁱⁱ :		
	Whole bottles	1 yd ³	500-700
	Semicrushed	1 yd ³	1,000-1,800
	Crushed (mechanically)	1 yd ³	1,800-2,700
	Uncrushed to manually broken	55-gal drum	300
	Refillable Whole Bottlesⁱⁱⁱ:		
	Refillable beer bottles	1 case = 24 bottles	10-14
	Refillable soft drink bottles	1 case = 24 bottles	12-22
	8 oz glass container	1 case = 24 bottles	12
LEAD-ACID BATTERIES	Car^{iv}	1 battery	39.4 lb
	Truck^v	1 battery	53.3 lb lead and plastic
	Motorcycle^E	1 battery	9.5 lb lead and plastic
METALS	Aluminum Cans^{vi}:		
	Whole	1 yd ³	50-75
	Compacted (manually)	1 yd ³	250-430
	Uncompacted	1 full grocery bag 1 case = 24 cans	1.5 0.9
	Ferrous (tin coated steel cans)^{vii}:		
	Whole	1 yd ³	150
	Flattened	1 yd ³	850
	Whole	1 case = 6 cans	22
	Major Appliances^E:		
	Air conditioners (room)	1 unit	64.2
	Dishwashers	1 unit	92
	Dryers (clothes)	1 unit	130

Category	Recyclable Materials (u/c = uncompacted/ compacted & baled)	Volume	Estimated Weight (in pounds)
METALS (cont'd)	Freezers	1 unit	193
	Microwave ovens	1 unit	50
	Ranges	1 unit	181.1
	Refrigerators	1 unit	267
	Washers (clothes)	1 unit	177
	Water heaters	1 unit	131
PAPER	Newspaper^F:		
	Uncompacted	1 yd ³	360-505
	Compacted/baled	1 yd ³	720-1,000
	12 in. stack	—	35
	Old Corrugated Containers^F:		
	Uncompacted	1 yd ³	50-150 (300) ^{viii}
	Compacted	1 yd ³	300-500
	Baled	1 yd ³	700-1,100
	Computer Paper^F:		
	Uncompacted (stacked)	1 yd ³	655
	Compacted/baled	1 yd ³	1,310
	1 case	2,800 sheets	42
	White Ledger^F:		
	Stacked (u/c)	1 yd ³	375-465/755-925
	Crumpled (u/c)	1 yd ³	110-205/325
	Ream of 20# bond; 8-1/2 in. x 11 in.	1 ream = 500 sheets	5
	Ream of 20# bond; 8-1/2 in. x 14 in.	1 ream = 500 sheets	6.4
	White ledger pads	1 case = 72 pads	38
	Tab Cards^F:		
	Uncompacted	1 yd ³	605
	Compacted/baled	1 yd ³	1,215-1,350
	Miscellaneous Paper:		
	Yellow legal pads ^F	1 case = 72 pads	38
	Colored message pads ^F	1 carton = 144 pads	22
	Telephone directories ^{ix}	1 yd ³	250
	Mixed Ledger/Office Paper ^F :		
	Flat (u/c)	1 yd ³	380/755
Crumpled (u/c)	1 yd ³	110-205/610	

Category	Recyclable Materials (u/c = uncompacted/ compacted & baled)	Volume	Estimated Weight (in pounds)
PLASTIC ^x	PET (Soda Bottles):		
	Whole bottles (uncompacted)	1 yd ³	30-40
	Whole bottles (compacted)	1 yd ³	515
	Whole bottles (uncompacted)	gaylord	40-53
	Baled	30 in. x 62 in.	500-550
	Granulated	semiload	30,000
	Granulated	gaylord	700-750
	8 bottles (2 L size)	16 L	1
	HDPE (Dairy):		
	Whole (uncompacted)	1 yd ³	24
	Whole (compacted)	1 yd ³	270
	Baled	32 in. x 60 in	400-500
	HDPE (Mixed):		
	Baled	32 in. x 60 in.	900
	Granulated	gaylord	800-1,000
	Granulated	semiload	42,000
	Other Plastic:		
	Uncompacted	1 yd ³	50
	Compacted/baled	1 yd ³	400-700
	Mixed PET and HDPE (Dairy):		
	Whole (uncompacted)	1 yd ³	32
Film:			
Baled	semiload	44,000	
Baled	30 in. x 42 in. x 48 in.	1,100	
TEXTILES ^l	Mixed textiles	1 yd ³	175
TIRES	Car Tires:		
	Whole tire ^E	1 tire	21
	Crumb rubber ^{xi}	1 tire	12
	Truck Tires:		
	Whole tire ^E	1 tire	70
	Crumb rubber ^K	1 tire	60
WOOD	Wood chips ^{xii}	1 yd ³	625
	Pallets ^F	—	30-100(40 avg.)

Category	Recyclable Materials (u/c = uncompacted/ compacted & baled)	Volume	Estimated Weight (in pounds)
YARD TRIMMINGS^F	Grass Clippings:		
	Uncompacted	1 yd ³	350-450
	Compacted	1 yd ³	550-1,500
	Leaves:		
	Uncompacted	1 yd ³	200-250
	Compacted	1 yd ³	300-450
	Vacuumed	1 yd ³	350
FURNISHINGS^E	Foam rubber mattress	1 mattress	55
MUNICIPAL SOLID WASTE^{xiii}	Residential waste (uncompacted at curb)	1 yd ³	150-300
	Commercial-industrial waste (uncompacted)	1 yd ³	300-600
	MSW (compacted in truck)	1 yd ³	500-1,000
	MSW (landfill density)	1 yd ³	750-1,250

Conversion Table Sources:

ⁱ Information obtained from Washington State.

ⁱⁱ Draft National Recycling Coalition Measurement Standards and Reporting Guidelines presented to NRC membership. October 31, 1989.

ⁱⁱⁱ Personal communication with a representative from Allwaste. November 6, 1995.

^{iv} Battery Council International. 1995. 1994 National Recycling Rate Study.

^v U.S. EPA. 1995. Methodology for Characterization of Municipal Solid Waste in the United States: 1994 Update. EPA530-R-96-001. Washington, DC.

^{vi} U.S. EPA. 1993. Business Guide for Reducing Solid Waste. EPA530-K-92-004. Washington, DC.

^{vii} Personal communication with a representative from the Steel Recycling Institute. November 1, 1995.

^{viii} Information obtained from New Jersey and New York States.

^{ix} Information obtained from Massachusetts State.

^x Personal communication with a representative from the American Plastics Council. November 2, 1995.

^{xi} Personal communication with a representative from the Scrap Tire Management Council. November 6, 1995.

^{xii} Information obtained from Northeast Forest Products, Martin Mulch Company, and the Solid Waste Association of North America.

^{xiii} Solid Waste Association of North America, Manager of Landfill Operations Training and Certification Course. January 1989.

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